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Transmitted herewith for filing is the patent application of Inventor(s):

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For: **METHOD FOR DESIGNING AND PURCHASING A PRODUCT**

Enclosed are:
[X]   2 sheet(s) of drawings
[X]   Assignment and Cover Sheet
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METHOD FOR DESIGNING AND PURCHASING A PRODUCT

5 **(1) FIELD OF THE INVENTION**

This invention relates to a method for designing and purchasing a product and more particularly, to a method for dynamically identifying and evaluating various

10 products and for dynamically identifying and evaluating various components and suppliers which may be used to produce a product which meets a certain previously identified need.

15 **(2) BACKGROUND OF THE INVENTION**

Products are typically designed to meet one or more needs or requirements of an organization or of certain customers of the organization. For example and without limitation, a vehicle manufacturing organization may

20 require the production of a certain type of assembly which is to be deployed in one of the models or types of vehicles which the organization is producing or is planning to produce.   As used within this description, the term "product" means any tangible item which must be

25 created or obtained and which meets certain needs or requirements of a business organization and/or certain customers of such a business organization.

1

Typically such products may be obtained from a variety of sources. Components which may be cooperatively assembled to produce such products may also be and have traditionally been obtained from a variety of sources.

5   While a plethora of product and component sources exist, it is difficult to identify and evaluate all of the items respectively provided by these various product and component suppliers and to evaluate all of the various combinations of components which may be used to produce

10   the desired product in order to ensure that an acquired product meets the technical and cost objectives and constraints required by the organization and to ensure that a product is produced which "optimally" meets or exceeds the dynamically configurable technical and cost

15   constraints and/or requirements of the business organization in a manner which is better than virtually or substantially all other potential and alternatively supplied products.

There is therefore a need for a method for designing

20   and purchasing a product which overcomes at least some of the previously delineated drawbacks of prior product design and purchasing methodologies and which allows products, components, and sources, and/or providers of such products and components to be efficiently identified

25   and evaluated.

SUMMARY OF THE INVENTON

It is a first object of the present invention to provide a method for designing and purchasing a product which overcomes at least some of the previously

5   delineated drawbacks of prior purchasing and design methodologies.

It is a second object of the present invention to provide a method for designing and purchasing a product which overcomes at least some of the previously

10 delineated drawbacks of prior purchasing and design methodologies and which dynamically identifies sources of the product and sources of components which may be cooperatively assembled to produce the product.

It is a third object of the present invention to

15 provide a method for designing and purchasing a product which overcomes at least some of the previously delineated drawbacks of prior purchasing and design methodologies and which identifies potential sources of the product and/or of components which may be assembled

20 to produce such a product while technically and economically evaluating each of the potentially sourced products and component combinations.

It is a fourth object of the present invention to provide a method for designing and purchasing a product

25 which overcomes at least some of the previously delineated drawbacks of prior purchasing and design

methodologies and which dynamically queries potential suppliers of such products for information effective to allow the potentially sourced products to be evaluated according to a dynamically configurable criteria.

5   It is a fifth object of the present invention to provide a method for designing and purchasing a product which allows potential sources of the product to be easily and quickly identified by use of a computerized analysis system and which further allows such

10   identification by use of a human cognitive function.

According to a first aspect of the present invention a method for purchasing a product is provided. The method includes the steps of identifying a plurality of suppliers; creating an information template for each

15   supplier; specifying the product; searching each of the information templates for the specified product; and reporting the results of the search.

According to a second aspect of the present invention a method for designing a product is provided.

20   The method comprises the steps of fixing certain attributes of the product; using the fixed attributes to select at least one component which is used to construct the product; creating a database containing the identity of a first and a second supplier for the at least one

25   component; querying the database, effective to identify a first supplier and a second supplier of the at least one

4

component; contacting each of the first and second supplier by use of a global communications network to request a computer aided design file from each supplier describing the respective at least one component provided

5 by the first and second suppliers; receiving the computer aided design file; and using the computer aided design file to evaluate the at least one component respectively provided by the first and second suppliers.

These and other features, aspects, and advantages of
10 the present invention will become apparent from a reading of the following detailed description of the preferred embodiment of the invention and by reference to the following drawings.

15 **BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 is a flowchart illustrating the sequence of steps included within the methodology of the preferred embodiment of the invention;

Figure 2 is one non-limiting example of an
20 information template which may be used by the methodology of the preferred embodiment of the invention; and

Figure 3 is a block diagram of a computer architecture which may be used to accomplish the methodology of the preferred embodiment of the invention.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT OF

THE INVENTION

Referring now to Figure 1, there is shown a flowchart or sequence of steps 10 which comprises the methodology of the preferred embodiment of the invention. Particularly, methodology or flowchart 10 includes a first step 12 in which a need within a business organization is identified. For example, two portions or elements within a vehicle may be required to be movably coupled in order to achieve some overall function or objective.

Step 14 follows step 12, and in this step, a product (i.e., a tangible item) is identified to meet this perceived need. For example, a gearing assembly may be needed to allow these two portions or elements to be coupled in the desired manner. Step 16 follows step 14 and, in this step, the individual components of the needed assembly are identified or "decomposed". For instance, the needed gear assembly may require a pair of dissimilar gears which are coupled in a certain manner in order to provide the desired coupling function. Therefore, in this step 16, the basic tangible elements which cooperatively form the product are identified. In one non-limiting embodiment, this decomposition identifies the items of the assembly which are to be interconnected. In other non-limiting embodiments of the

invention other "intangible" decompositions may be accomplished including the creation of an acquisition cost range (i.e., the amount of money that the organization is willing to pay for the product) or the

5   creation of an acceptable acquisition time frame (i.e., the range of time over which the product must be acquired).   Other non-tangible constraints and/or requirements may also be identified and/or created in this step 16.

10   Step 18 follows step 16, and in this step, the attributes or characteristics of the product and the components and any interrelationship attributes (i.e., attributes related to the interrelationship of the product to other products or components) are identified.

15   Such attributes and characteristics may included the overall function, size, weight, shape, pitch, hardness, and various other measurable features of each of the previously identified components and of the overall product.   Step 20 follows step 18, and in this step, a

20   search is made for suppliers which source or provide both the final assembly or product and/or the individual components which may be used to construct the final assembly and which have previously been identified within step 16.

25   Step 22 follows step 20, and in this step, all permissible combinations of component suppliers and all

final assembly or products suppliers are dynamically and automatically created or identified. Step 24 follows step 22, and in this step, all of the products and groups of components which may selectively form the product are evaluated by use of the previously created tangible and intangible constraints. That is, the products and components which are "sourced" by these suppliers are "evaluated" in order to ensure that they respectively meet the previously identified technical and intangible requirements. The last step of process 10 requires that a recommendation be issued or generated which specifies the identity of the desired final assembly provided or combination of component providers. It should be realized that the supplier search may be done at substantially the same time as the attributes are created within step 18. The recommendations may be used to purchase and/or otherwise acquire a product.

To better understand the operation of the methodology 10 reference is now made to the computer architecture configuration 30 of Figure 3 which requires the purchasing business organization to have a computer 32 which is communicatively and physically coupled to a global communication network 34 such as the Internet. Each prospective supplier, such as suppliers 36 and 38 are also physically and communicatively coupled to the communications network 34, effective to allow the query

8

which is required by step 20 to be dynamically and automatically accomplished by computer 32 through the use of communications network 34.

In order to allow the data or information to be efficiently categorized and acquired, each supplier 36, 38 is required to have a template such as template 50 in Figure 2. Particularly, template 50 includes a first dynamically configurable and searchable field 52 which identifies an item (i.e. a final assembly or component). Template 50 further includes a dynamically configurable and searchable field 54 which specifies the physical attributes of the item and a dynamically configurable and searchable field 56 which specifies the attributes related to the interrelationship of this item to other items or components. An intangible field 57 is also used to specify the cost, availability, and other intangible attributes. These templates 50 are created for each component, product or final assembly which is produced by each respective supplier 36, 38 and are dynamically updated to allow modifications and changes to be made to the products and to reflect the creation of new products and components. The information on these templates is then used, by purchaser 32, to determine whether a certain provided product or a certain provided component in combination with one or more other components meets the needs of the organization. In other non-limiting

9

embodiments, computerized design files may be transmitted by the potential supplier 36, 38 to the purchaser 32, effective to allow the purchaser 32 to determine whether the sourced components and/or product meets the technical

5 need of the organization. These files may also selectively be used to construct a three dimensional prototype as described within the text entitled <u>Direct Engineering-Toward Intelligent Manufacturing</u> edited by Ali K. Kamrani and Peter R. Sferro (Kluwer Academic

10 Publishers), ISBN 0-7923-8338-9, which is fully and completely incorporated herein by reference. These templates 50 may also be manually searched by an individual, effective to allow for human cognitive product and component identification. Moreover, each

15 template 50 may be selectively stored within a single database.

It should be realized that the invention is not limited to the exact construction and method which has been previously discussed but that various modifications

20 may be made without departing from the spirit and the scope of the invention as is more fully delineated in the following claims.

WHAT IS CLAIMED IS:

(1) A method for purchasing a product comprising the steps of:

5   identifying a plurality of suppliers;

creating an information template for each supplier;

specifying the product;

searching each of the information templates for the specified product;

10   identify a supplier by use of said search; and

purchasing said product from said one identified supplier.

(2) The method of claim 1 further comprising the steps of:

15   placing certain information on said information template of said identified supplier related to the cost of producing said product; and

reporting said certain information.

(3) The method of claim 2 further comprising the steps

20 of:

causing a design file of said product to be created; and

evaluating said design file before purchasing said product.

25 (4) The method of claim 1 further comprising the step of:

11

creating information relating to the operation of said product; and

placing said information upon said template of said identified supplier.

5   (5)   The method of Claim 1 wherein said product is selectively assembled within a vehicle.

(6)   The method of Claim 1 wherein said templates are searched over a global computer network.

(7)   The method of Claim 6 wherein said global computer

10   network comprises the internet.

(8)   A method for designing a product comprising the steps of:

fixing certain attributes of the product;

using the fixed attributes to select at least one

15   component which is used to construct the product;

creating a database containing the identity of a first and a second supplier for the at least one component;

querying the database, effective to identify a first

20   supplier and a second supplier of the at least one component;

contacting each of the first and second supplier by use of a global communications network to request a computer aided design file form each supplier describing

25   the respective at least one component provided by the first and second suppliers;

12

receiving the computer aided design file; and

using the computer aided design file to evaluate the at least one component respectively provided by the first and second suppliers.

5 (9) The method of Claim 8 wherein said certain attributes comprise certain tangible characteristics of said product.

(10) The method of Claim 9 wherein said certain attributes further comprise certain intangible

10 characteristics of said product.

(11) The method of Claim 10 wherein said certain attributes further comprise interrelationship attributes.

(12) The method of Claim 10 wherein certain intangible characteristics of said product comprise a cost of

15 obtaining said product.

(13) A method for purchasing a product comprising the steps of:

fixing attributes of said product;

decomposing said product into several interconnected

20 components;

identifying a plurality of suppliers;

creating an information template for each of said plurality of suppliers, each of said information templates containing information identifying the

25 respective products and

13

components provided by the supplier, a cost of producing each of said respectively provided products and components, and the time required to provide each of said respective products and components; and

5   searching said information templates in order to identify suppliers of said product and said several interconnected components.

(14) The method of Claim 13 further comprising the step of:

10   identifying at least one supplier of said product by use of said information templates.

(15) The method of Claim 14 further comprising the step of:

identifying at least one supplier of said several

15   interconnected components by use of said information templates.

ABSTRACT OF THE DISCLOSURE

A method 10 for designing and purchasing a product which allows the respective product and cost information associated with a variety of potential suppliers 36, 38 to be automatically queried.

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IDENTIFY NEED ⟋ 12

IDENTIFY PRODUCT
TO MEET THE NEED ⟋ 14

IDENTIFY COMPONENTS
OF THE PRODUCT ⟋ 16

IDENTIFY ATTRIBUTES
AND INTERRELATIONSHIP
ATTRIBUTES ⟋ 18

SEARCH FOR SUPPLIERS ⟋ 20

CREATE PERMISSIBLE COMBINATIONS ⟋ 22

EVALUATE COMBINATIONS ⟋ 24

RECOMMENDATION ISSUED ⟋ 26

Figure 1

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┌─────────────────────────────────────────┐                50
│                                          │ ╱
│         ITEM IDENTIFICATION ─────────────── 52
│                                          │
│      •  PHYSICAL ATTRIBUTES ───────────── 54
│      •  INTERRELATIONSHIP ATTRIBUTES ──── 56
│      •  INTANGIBLE ATTRIBUTES ────────── 57
│                                          │
└─────────────────────────────────────────┘
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Figure 2

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                    ┌──────────────┐
                    │  PURCHASER   │        30
                    └──────────────┘
                          ▲ │          32
                          │ ▼
         ─────────────────────────────────────
                              34

     ┌──────────┐                    ┌──────────┐
     │POTENTIAL │                    │POTENTIAL │
     │SUPPLIER  │  •  •  •  •  •     │SUPPLIER  │
     │  # 1     │                    │  # N     │
     └──────────┘                    └──────────┘
          36                              38
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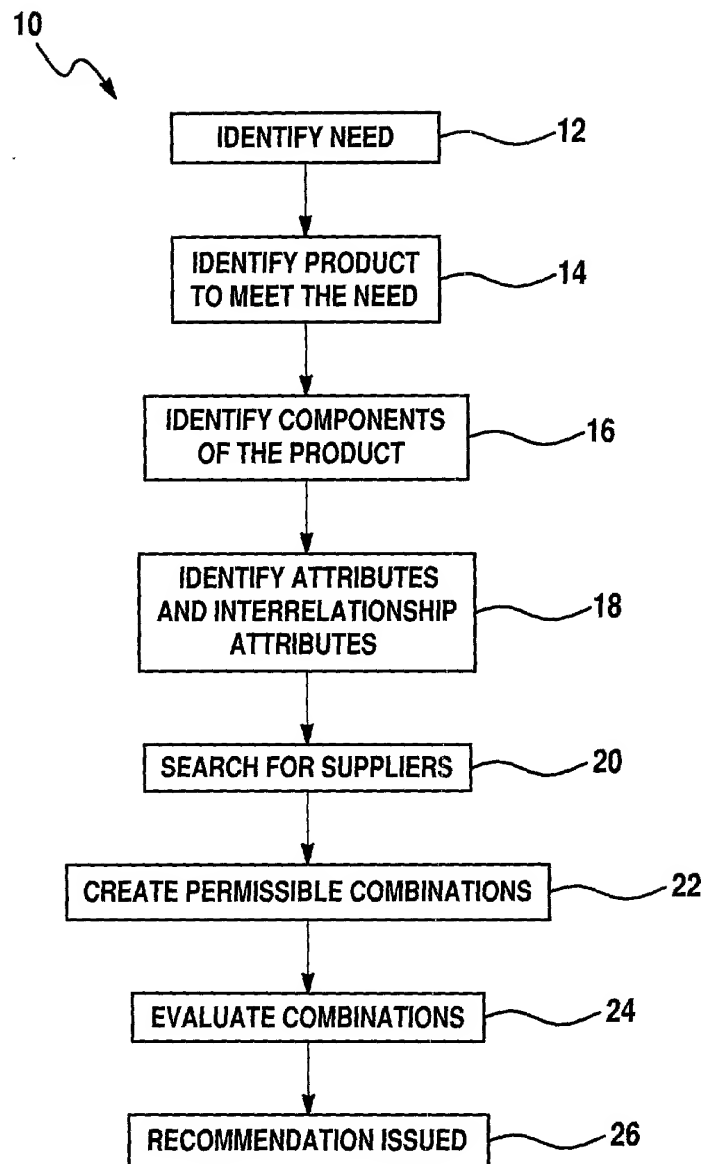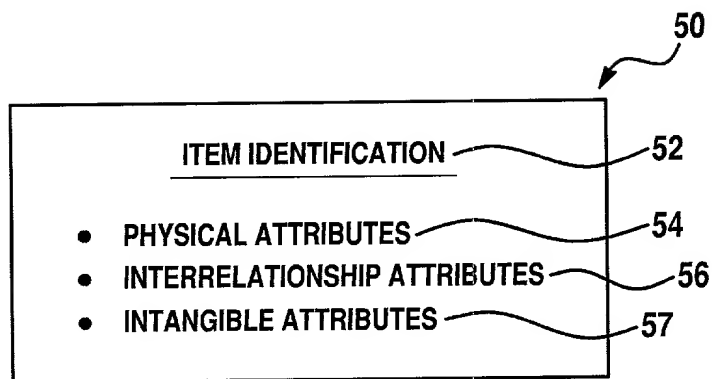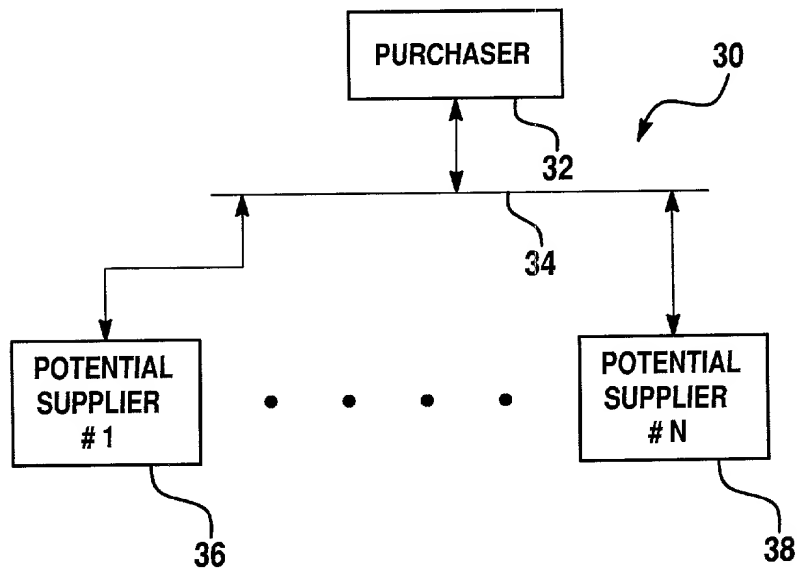
Figure 3

DECLARATION AND POWER OF ATTORNEY - ORIGINAL APPLICATION	Attorney's Docket No. **200-0505**

As a below named inventor, I hereby declare:
My residence, post office address and citizenship are as stated below next to my name;

I verily believe I am the original, first and sole inventor or an original, first and joint inventor of the subject matter that is claimed and for which a patent is sought on the invention entitled

METHOD FOR DESIGNING AND PURCHASING A PRODUCT

the specification of which is attached hereto.

I have reviewed and understand the contents of the specification identified above, including the claims.

I acknowledge my duty to disclose information of which I am aware that is material to the examination of this application in accordance with Section I.56(a), Title 37 of the Code of Federal Regulations; and

as to application for patents or inventor's certificate on the invention filed in any country foreign to the United States of America, prior to this application by me or my legal representatives or assigns,

    [X]   no such applications have been filed, or

    [ ]   such applications have been filed as follows

COUNTRY	APPLICATION NO.	DATE OF FILING (day, month, year)	DATE OF ISSUE (day, month, year)	PRIORITY CLAIMED UNDER 35 USC 119

I hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s) or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

_____   _____   _____
(Application Number)   (Filing Date)   (Status - patented, pending, abandoned)

_____   _____   _____
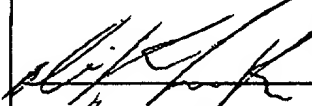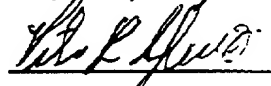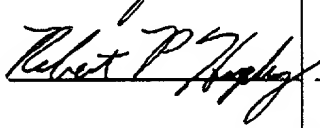(Application Number)   (Filing Date)   (Status - patented, pending, abandoned)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the United States Patent and Trademark Office connected therewith and to act on my behalf before the competent International Authorities in connection with any and all international applications filed by me. (List name and registration number)

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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